

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

CISCO SYSTEMS, INC. and
ACACIA COMMUNICATIONS, INC.,

Plaintiffs,

v.

RAMOT AT TEL AVIV UNIVERSITY
LTD.,

Defendant.

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C.A. No. _____

DEMAND FOR JURY TRIAL

COMPLAINT FOR DECLARATORY JUDGMENT

Plaintiffs Cisco Systems, Inc. (“Cisco”) and Acacia Communications, Inc. (“Acacia”) bring this Complaint against defendant Ramot at Tel Aviv University Ltd. (“Ramot”) seeking declaratory relief under 28 U.S.C. §§ 2201 and 2202 with respect to U.S. Patent No. 11,133,872 (the “’872 patent”). In support of this Complaint for Declaratory Judgment, Plaintiffs Cisco and Acacia allege as follows:

NATURE OF THE ACTION

1. This is an action brought under the Declaratory Judgment Act seeking a declaration that Cisco and its wholly-owned subsidiary Acacia do not infringe any claim of the ’872 patent, which defendant Ramot purports to own by assignment.

2. The ’872 patent is titled “Linearized Optical Digital-to-Analog Modulator” and issued on September 28, 2021. The patent purports to be directed to methods and systems for converting digital data into modulated optical signals. Because a copy of the ’872 patent is not yet available from the United States Patent and Trademark Office (“USPTO”) in downloadable form, attached as Exhibit A is a compilation of the relevant excerpts from the prosecution file history of the application from which the ’872 patent matured (U.S. Patent Application 16/532,567), *i.e.*, the

Issue Notification (identifying the '872 patent number); the Issue Classification (identifying the final, as-issued claim numbering for the allowed application claims); a listing of the allowed claims; and a copy of the specification as originally filed with the USPTO in connection with U.S. Patent Application 16/532,567.

3. The '872 patent is the latest patent to issue in a family of patents that have been the subject of an ongoing dispute between Ramot, Cisco, and Acacia dating back to 2014, when Ramot first sued Cisco on two ancestor patents of the '872 patent in the Eastern District of Texas. These two patents—U.S. Patent No. 8,044,835 and U.S. Patent No. 8,797,198—were the first to issue in the “Linearized Optical Digital-to-Analog Modulator” family. Ramot voluntarily dismissed that suit in February 2015, approximately three months after filing it, but continued to pursue prosecution of child patents in the family. Since the filing of its original lawsuit, Ramot has been obtaining patents tracing back to the two originally-asserted patents and then suing Cisco, and more recently also Acacia, on those patents.

4. In June 2019, Ramot sued Cisco in the Eastern District of Texas on three patents from the “Linearized Optical Digital-to-Analog Modulator” family it had obtained since dismissing its 2014 action against Cisco—U.S. Patent No. 10,270,535 (the “’535 patent”); U.S. Patent No. 10,033,465 (the “’465 patent”); and U.S. Patent No. 10,461,866 (the “’866 patent”). That lawsuit targeted optical transceiver modules and components thereof. Importantly, Acacia was one of Cisco’s suppliers of optical transceiver modules accused by Ramot under both direct and contributory infringement theories. Shortly after that lawsuit was filed, Cisco announced it was acquiring Acacia. The Eastern District of Texas stayed that case in January 2021 because of the pendency of *ex parte* reexaminations against the asserted patents.

5. Then, just six months ago, Ramot brought its dispute against Acacia and Cisco to this District. After the Eastern District of Texas stayed the 2019 case, Ramot asserted two of the patents from that case—including the '535 patent, the grandparent of the '872 patent—against Acacia in this District. Notably, Ramot filed its lawsuit in Delaware only three days before Cisco completed its acquisition of Acacia. Since March 1, 2021, Acacia has been a wholly-owned subsidiary of Cisco.

6. Also notably, as set forth below, Ramot has represented to this Court that the 2019 suit in Texas concerns only activities of Cisco and Acacia with respect to accused products **before** the March 1, 2021 acquisition. *See* C.A. No. 21-295-LPS (D. Del.), D.I. 14 at 2 (Plaintiff Ramot at Tel Aviv University Ltd.'s Opposition to Defendant's Motion to Stay Pending *Ex Parte* Reexamination). On the other hand, Ramot told this Court that the suit Ramot filed six months ago in this District concerns "infringement across Acacia's entire product line...all of its infringing sales." *Id.* Thus, the Delaware action is broader in scope with respect to accused products than the 2019 Eastern District of Texas action.

7. Now that the '872 patent has issued, both Cisco and Acacia reasonably believe that Ramot will accuse various of their optical transceiver modules, components thereof, and networking equipment in which such modules are incorporated, of infringing one or more claims of the '872 patent. As set forth below, Ramot's history of asserting patents in the "Linearized Optical Digital-to-Analog Modulator" family against Cisco and Acacia supports the reasonableness of this belief. Accordingly, Cisco and Acacia bring this lawsuit seeking to remove the cloud of infringement allegations placed over their optical-transceiver-module-related products by the '872 patent.

THE PARTIES

8. Plaintiff Cisco Systems, Inc. is a Delaware corporation with its principal place of business at 170 West Tasman Drive, San Jose, California 95134.

9. Plaintiff Acacia Communications, Inc. is a wholly-owned subsidiary of Cisco. Acacia is incorporated in Delaware with its principal place of business at Three Mill and Main Place, Suite 400, Maynard, Massachusetts 01754. Cisco completed its acquisition of Acacia on March 1, 2021.

10. On information and belief, defendant Ramot at Tel Aviv University, Ltd. is a limited liability company organized under the laws of Israel with its principal place of business at Tel Aviv University, Senate Building at Gate no. 4, George Wise Street, Tel Aviv, Israel.

11. On information and belief, Ramot is the owner by assignment of the '872 patent, as well as three related United States patents—U.S. Patent No. 10,033,465 (the "'465 patent"), U.S. Patent No. 10,270,535 (the "'535 patent"), and U.S. Patent No. 10,461,866 (the "'866 patent"). The '465 patent is attached as Exhibit B hereto; the '535 patent as Exhibit C; and the '866 patent as Exhibit D.

12. These four patents—the '872 patent, the '465 patent, the '535 patent, and the '866 patent—all share a common specification and title ("Linearized Optical Digital-to-Analog Modulator"), all name the same three inventors (Yossef Ehrlichman, Ofer Amrani, and Shlomo Ruschin), and all purport to claim priority to the same U.S. provisional application (No. 60/943,559, filed June 13, 2007).

13. As set forth further in the Claim for Relief below, each of the five independent claims of the '872 patent recites limitations requiring specific "digital-to-digital mapping[s]." These digital-to-digital-mapping limitations are key elements both in the claims of the '872 patent and in the claims of the '465 patent, the '535 patent, and the '866 patent that Ramot previously asserted against Cisco and/or Acacia.

14. As one example, one limitation of previously-asserted claim 1 of the '535 patent requires “converting the N bits of digital data to M drive voltage values, where $M > N$ and $N > 1$.” Previously-asserted claim 1 of the '465 patent includes a similar limitation: “inputting into an optical modulator N bits of digital data in parallel, N being larger than one; [and] mapping a set of N input values corresponding to said N bits of digital data to a vector of M voltage values where M is equal to or larger than N.” Previously-asserted claim 7 of the '866 Patent likewise includes a digital-to-digital-mapping limitation: “using the digital to digital converter for mapping a set of N input values corresponding to the N bits of digital data word to a digital drive vector corresponding to M drive voltage values where M is larger than N.”

15. Like these previously-asserted claims, claim 1 of the '872 patent at issue in this declaratory judgment action includes a similar “mapping” limitation, which requires “converting, based on digital-to-digital mapping, the plurality N digital input data bits to M digital output data bits associated with M drive voltage values...wherein $M > N$ and $N > 1$.”

RAMOT’S RECENT LITIGATION HISTORY AGAINST CISCO AND ACACIA

16. On July 9, 2019, Cisco publicly announced its intent to acquire one of its then-existing suppliers, Acacia. Acacia designs and manufactures high-speed, optical interconnect technologies. *See* Cisco News Release, July 9, 2019, “Cisco Intends to Acquire Acacia Communications,” available at <https://newsroom.cisco.com/press-release-content?articleId=2000889> (last visited Sept. 27, 2021).

17. Less than one month before that announcement, on June 12, 2019, Ramot sued Cisco in the Eastern District of Texas. *See Ramot at Tel Aviv University Ltd. v. Cisco Systems, Inc.*, C.A. No. 2:19-cv-002255-JRG (E.D. Tex.) (hereinafter, the “2019 Texas Action”).

18. In the 2019 Texas Action, Ramot originally asserted the grandparent of the '872 patent at issue in this case (the '535 patent) and another related patent (the '465 patent) belonging to the same “Linearized Optical Digital-to-Analog Modulator” patent family.

19. While the 2019 Texas Action was pending, the '866 patent issued, on October 29, 2019. The '866 patent is a child of the '535 patent and the immediate parent of the '872 patent. Less than two months later, on December 12, 2019, Ramot filed an amended complaint in the 2019 Texas Action adding a count charging Cisco with infringement of the '866 patent. *See* C.A. No. 2:19-cv-00225-JRG (E.D. Tex.), D.I. 48 (First Amended Complaint) at ¶¶ 60-72.

20. On January 13, 2021, the Eastern District of Texas stayed Ramot’s 2019 Texas Action, pending *ex parte* reexamination of the '535 patent, the '465 patent, and the '866 patent. *See* C.A. No. 2:19-cv-00225 (E.D. Tex.), D.I. 235 (Order on Motion to Stay). The court was “persuaded that the benefits of a stay outweigh the costs of postponing resolution of the litigation in this particular case.” *Id.* at 4. In particular, the court explained that the claims of the patents would “almost surely...be modified” during *ex parte* reexamination—and even “may be dropped completely”:

All asserted claims of all Asserted Patents have been rejected in preliminary Office Actions in the *ex parte* reexams. (Dkt. Nos. 171, 180, 209.) When claims are rejected in an *ex parte* reexamination proceeding, the patent owner can narrow, cancel, or submit new claims. *See* M.P.E.P. § 2258. Thus, the asserted claims that have been rejected in the reexamination proceedings **are almost surely to be modified in some material way** in response to their rejection, and **they may be dropped completely**. They will not likely stay as they were when this suit was filed. If the case were to proceed to trial on the current claims, there is a serious risk of wasted resources as to the parties and the Court.

Id. at 4 (emphasis added).

21. The following month, on February 26, 2021, Ramot filed another patent-infringement action—this time in Delaware—asserting two of the patents asserted in the Eastern

District of Texas, the '535 patent and the '465 patent. *See Ramot at Tel Aviv University, Ltd. v. Acacia Comm'ns, Inc.*, C.A. No. 21-295-LPS (D. Del.) (hereinafter, the "February 2021 Delaware Action").

22. In the February 2021 Delaware Action, Ramot named Acacia as the sole defendant. Three days after the lawsuit was filed, Cisco completed its acquisition of Acacia. *See, e.g.*, Cisco Press Release, March 1, 2021, "Cisco Completes Acquisition of Acacia Communications, Inc.," available at <https://newsroom.cisco.com/press-release-content?type=webcontent&articleId=2144825> (last accessed September 27, 2021). Through this corporate transaction, Acacia became a wholly-owned subsidiary of Cisco.

23. In a subsequent pleading in the February 2021 Delaware Action, Ramot justified its selection of Delaware for its infringement dispute by characterizing its 2019 Texas Action as being limited in scope and concerning only "pre-acquisition sales of certain products to Cisco." C.A. No. 21-295-LPS (D. Del.), D.I. 14 at 2 (Plaintiff Ramot at Tel Aviv University Ltd.'s Opposition to Defendant's Motion to Stay Pending *Ex Parte* Reexamination). The lawsuit in Delaware, on the other hand, concerned "infringement across Acacia's entire product line." *Id.*:

Ramot brought this present case to address identified infringement across Acacia's entire product line—and accused all of its infringing sales, not just the pre-acquisition sales of certain products to Cisco that were at issue in the Texas case. *See* Complaint, D.I. 1 at ¶¶ 21-39. Accordingly, a substantial amount of new and unique discovery into newly accused products and sales is needed in this case.

24. The Court stayed the February 2021 Delaware Action on September 3, 2021, pending the *ex parte* reexaminations pending for the '535 patent and the '465 patent. *See* C.A. No. 21-295-LPS (D. Del.), D.I. 23.

JURISDICTION AND VENUE

Subject-Matter Jurisdiction

25. This action arises under the patent laws of the United States, 35 U.S.C. § 1 *et seq.* This Court has subject-matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a). Additionally, this Court has subject-matter jurisdiction over Cisco's and Acacia's request for declaratory relief under 28 U.S.C. §§ 2201 and 2202.

26. An actual controversy exists between Ramot, on the one hand, and Cisco and Acacia, on the other, as to whether Cisco and Acacia directly infringe the '872 patent under 35 U.S.C. § 271(a). This controversy includes the question of whether Cisco and Acacia directly infringe the '872 patent by making, using, offering for sale, selling, and/or importing products that Ramot previously alleged infringe patents in the "Linearized Optical Digital-to-Analog Modulator" family, *i.e.*, the '535 patent, the '465 patent, and the '866 patent.

27. The products at issue include (a) networking equipment including line cards and optical transceiver modules; (b) the optical network transceiver modules themselves, including coherent optical transceiver modules; and (c) components of optical transceiver modules and associated circuitry and software, such as digital signal processing application specific integrated circuits and silicon photonic integrated circuits (the "Accused Products").

28. The Accused Products include (a) Acacia's AC1200 products, AC400 products, and 100G, 200G, and 400G pluggable modules in a variety of standard form factors such as CFP-DCO, CFP2-DCO, CFP2-ACO, OSFP, and QSFP-DD; (b) components of these modules, *i.e.*, Acacia's digital signal processing ("DSP") application specific integrated circuits ("ASICs") and "Silicon Photonic integrated circuits"; and (c) Cisco's networking equipment incorporating optical transceiver modules including Cisco's various 100G, 200G, and 400G optical modules.

29. As shown below, there is a substantial controversy over Cisco's and Acacia's purported direct infringement, between parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment. This controversy exists based on Ramot's prior assertions of related patents in the "Linearized Optical Digital-to-Analog Modulator" family in litigation against the Accused Products of Cisco and Acacia.

30. For example, in the February 2021 Delaware Action that Ramot filed in this District six months ago, it accused Acacia of directly infringing at least claim 2 of the grandparent of the '872 patent (the '535 patent) and at least claim 13 of another related patent in the "Linearized Optical Digital-to-Analog Modulator" family (the '465 patent). Ramot alleged that direct infringement occurred through Acacia's "making, using, offering for sale, selling and importing optical networking transceiver modules and components thereof...including, without limitation certain of Acacia's various coherent optical modules and associated circuitry and software." C.A. No. 21-295-LPS (D. Del.), D.I. 1 (Complaint) at ¶¶ 3, 49, 63.

31. The categories of accused products in the February 2021 Delaware Action included (a) "Acacia's coherent optical transceiver modules includ[ing] embedded modules such as the AC1200 and AC400 products, as well as 100G, 200G, and 400G pluggable modules in a variety of standard form factors such as CFP-DCO, CFP2-DCO, CFP2-ACO, OSFP, and QSFP-DD"; and (b) "multiple generations of [Acacia's] DSP ASICs and Silicon Photonic ICs" that are components of the coherent optical transceiver modules. *Id.* at ¶¶ 21-23; *see generally* ¶¶ 21-39 (discussing the various accused "infringing coherent optical transceiver modules and DSP ASIC and Silicon Photonic IC components thereof").

32. As another example, in the 2019 Texas Action, Ramot accused Cisco of directly infringing claims 1 and 2 of the grandparent of the '872 patent (the '535 patent); claims 7, 8, 10-

12, 19, 20, and 22-24 of the immediate parent of the '872 patent (the '866 patent); and claims 1, 2, 4 and 5 of another related patent in the family, the '465 patent. Ramot alleged that such direct infringement occurred through Cisco's "making, using, offering for sale, selling, and importing networking equipment with corresponding line cards and optical transceiver modules providing advanced electro-optical modulation techniques—including, without limitation, certain of Cisco's various 100G, 200G and 400G optical modules and associated circuitry and software." C.A. No. 2:19-cv-00225-JRG (E.D. Tex.), D.I. 48 (First Amended Complaint) at ¶¶ 2, 33, 40, 48, 61, 66.

33. The accused products in the 2019 Texas Action include "100, 200, and 400 Gbps pluggable CFP2 modules; 100, 200, and 400 Gbps QSFP56 and QSFP-DD modules, including modules that operate at speeds at or about 50 Gbps per optical or electrical lane; 'BiDi' modules that communicate at or above 100 Gbps, including 100G BiDi and 400G BiDi products; modules that communicate according to the 100G-FR, 100G-LR, and 400G-FR4 Technical Specifications; and other modules that include similar functionality." *Id.* at ¶ 30.

34. Furthermore, an actual controversy exists between Ramot, on the one hand, and Cisco and Acacia, on the other, as to whether Cisco and Acacia indirectly infringe the '872 patent under 35 U.S.C. §§ 271(b) and/or (c). This controversy includes a dispute as to whether Cisco's and Acacia's blog posts, presentations, whitepapers, videos, customer instructions, and/or design contributions with respect to the Accused Products constitute encouragement with a specific intent to induce infringement within the meaning of 35 U.S.C. § 271(b). This actual controversy also includes a dispute as to whether Cisco and Acacia make, use, sell, offer for sale, or import coherent optical transceiver modules or components thereof (such as DSP ASICs and Silicon Photonic ICs) knowing that these products constitute a material part of the claimed invention, are especially made

or adapted for use in infringing the '872 patent, and are not staple articles or commodities of commerce capable of substantial noninfringing uses, such that contributory infringement occurs within the meaning of 35 U.S.C. § 271(c).

35. As shown below, there is a substantial controversy over Cisco's and Acacia's purported indirect infringement, between parties having adverse legal interests, of sufficient immediacy and reality to warrant the issuance of a declaratory judgment. This controversy exists based on Ramot's prior assertions of related patents in the "Linearized Optical Digital-to-Analog Modulator" family in litigation against Cisco and Acacia.

36. For example, in the February 2021 Delaware Action, Ramot accused Acacia of inducing infringement under 35 U.S.C. § 271(b) of the grandparent of the '872 patent (the '535 patent) and another related patent in the same family (the '465 patent) through *inter alia* "contributing to its customer's designs" and publishing "Blog posts, Presentations, Whitepapers, and Videos" concerning the Accused Products. C.A. No. 21-295-LPS (D. Del.), D.I. 1 (Complaint) at ¶¶ 38, 51, 65; *see also id.* at ¶¶ 24-39 (identifying specific blog posts, presentations, whitepapers, and videos).

37. In the February 2021 Delaware Action, Ramot also accused Acacia of contributory infringement under 35 U.S.C. § 271(c) of the '535 patent and the '465 patent through the making, using, selling, offering for sale, and importing the "'535 Accused Products" and the "'465 Accused Products" based on the allegation that Acacia knew "that those products constitute a material part of the claimed invention, that they are especially made or adapted for use in infringing the...Patent, and that they are not staple articles or commodities of commerce capable of substantial non-infringing use." *Id.* at ¶¶ 52, 66.

38. As another example, in the 2019 Texas Action, Ramot accused Cisco of inducing infringement under 35 U.S.C. § 271(b) of the grandparent of the '872 patent (the '535 patent), the immediate parent of the '872 patent (the '866 patent), and another related patent in the same family (the '465 patent) through *inter alia* “instruct[ing] its customers on how to use and implement the technology claimed” in the asserted patents via product datasheets, brochures, and product briefs. C.A. No. 2:19-cv-00225-JRG (E.D. Tex.), D.I. 48 (First Amended Complaint) at ¶¶ 42, 55, 68.

39. In the 2019 Texas Action, Ramot also accused Cisco of contributory infringement under 35 U.S.C. § 271(c) of the '535 patent, the '866 patent, and the '465 patent through the making, using, selling, offering for sale, and importation of the “'535 Accused Products,” the “'866 Accused Products,” and the “'465 Accused Products” based on the allegation that Cisco knew “that those products constitute a material part of the claimed invention, that they are especially made or adapted for use in infringing the...Patent, and that they are not staple articles or commodities of commerce capable of substantial non-infringing use.” *Id.* at ¶¶ 43, 56, 69.

40. Cisco’s and Acacia’s reasonable belief that Ramot will charge them with infringing one or more claims of the '872 patent, both directly and indirectly, is further supported by Ramot’s history of asserting patents in this same “Linearized Optical Digital-to-Analog Modulator” family against Cisco and Acacia. Indeed, when the '872 patent’s immediate parent (the '866 patent) issued during the course of Ramot’s 2019 Texas Action against Cisco, on October 29, 2019, Ramot amended its complaint within two months to charge Cisco with direct and indirect infringement of the '866 patent. *See* C.A. No. 2:19-cv-00225-JRG (E.D. Tex.), D.I. 48 (First Amended Complaint) at ¶¶ 60-72.

41. As another example of Ramot’s repeated litigation of patents in the same family against Cisco and/or Acacia, on November 5, 2014, Ramot sued Cisco in the Eastern District of

Texas, alleging that Cisco’s “100G” networking-equipment products infringed U.S. Patent No. 8,044,835 (the “’835 patent”) and U.S. Patent No. 8,797,198 (the “’198 patent”). *See Ramot at Tel Aviv University Ltd. v. Cisco Systems, Inc.*, C.A. No. 2:14-cv-1018-JRG (E.D. Tex.), D.I. 1 (Complaint) (hereinafter, the “2014 Action”). Ramot voluntarily dismissed the 2014 Action without prejudice approximately three months later, on February 24, 2015. *See* C.A. No. 2:14-cv-1018-JRG (E.D. Tex.), D.I. 14 (Notice of Voluntary Dismissal Without Prejudice),

42. The ’835 patent and ’198 patent asserted in the 2014 Action belong to the same patent family as the ’872 patent at issue in this suit and the three related patents asserted in the 2019 Texas Action and the February 2021 Delaware Action. Specifically, the ’835 patent and the ’198 patent were the first to issue in the “Linearized Optical Digital-to-Analog Modulator” family; the ’535 patent and ’866 patent asserted in Ramot’s subsequent 2019 Texas Action against Cisco are continuations from the ’835 patent and the ’198 patent. In that lawsuit, Ramot characterized the ’835 patent and the ’198 patent as the “parent patents” of the ’535 patent and ’866 patent—which, in turn, are the grandparent and immediate parent, respectively, of the ’872 patent at issue in this action. *See* C.A. No. 2:19-cv-00225-JRG (E.D. Tex.), D.I. 48 (First Amended Complaint) at ¶¶ 44, 70.

43. Moreover, to support its claim for willful infringement in the 2019 Texas Action, Ramot alleged that because Cisco had been charged with infringement of “parent patents” in the 2014 Action—*i.e.*, the ’835 patent and the ’198 patent—Cisco knew (or should have known) its activities also infringed the child patents in the same family. *See, e.g., id.* at ¶ 70 (“On information and belief, Cisco was aware of the ’866 Patent and related Ramot patents, had knowledge of the infringing nature of its activities, and nevertheless continues its infringing activities. For example,

on November 5, 2014, Ramot sued Cisco for infringement of two parent patents of the '866 patent.”).

44. The fact that Ramot sued Cisco on parent patents to the '872 patent in the 2019 Texas Action and sued Acacia on a parent patent to the '872 patent in the February 2021 Delaware Action gives Cisco and Acacia reason to believe that Ramot also will claim that Cisco's and Acacia's activities with respect to the Accused Products infringe one or more claims of the child '872 patent.

Personal Jurisdiction

45. Ramot is subject to specific personal jurisdiction in this District because of its filing of the related February 2021 Delaware Action in this District. *See Ramot at Tel Aviv Univ., Ltd. v. Acacia Comm'ns Inc.*, No. 21-295-LPS (D. Del.), D.I. 1 (Complaint). By bringing this lawsuit in Delaware, Ramot consented to personal jurisdiction in Delaware.

46. By filing the February 2021 Delaware Action, Ramot also subjected itself to specific personal jurisdiction in this District by transacting business in Delaware within the meaning of Delaware's Long-Arm Statute, 10 Del. C. § 3104(c)(1).

47. In the alternative, and as additional support for personal jurisdiction over Ramot in Delaware, personal jurisdiction can be established through service of summons or waiver of service of summons under Fed. R. Civ. P. 4(k)(2). Ramot alleges that it is an Israeli company headquartered in Israel. Ramot has never alleged any presence or activity in any state in the United States, nor do public records and public searches indicate any such presence or activity in any state in the United States, with the exception of Ramot's assertion, licensing, and litigation campaigns over the “Linearized Optical Digital-to-Analog Modulator” patent family, including Ramot's prior 2014 Texas Action against Cisco, its 2019 Texas Action against Cisco, and its February 2021 Delaware Action against Acacia. On information and belief, based on the foregoing facts, Ramot

is not amenable to personal jurisdiction in any state's court of general jurisdiction, but does have sufficient minimal contacts with the United States as a whole. Accordingly, Fed. R. Civ. P. 4(k)(2) provides an additional basis for the exercise of personal jurisdiction over Ramot with respect to Cisco's and Acacia's claim for declaratory relief.

Venue

48. Venue is proper in this District pursuant to 28 U.S.C. § 1391.

CLAIM FOR RELIEF **Declaration of Noninfringement of the '872 Patent**

49. Plaintiffs Cisco and Acacia restate and incorporate each of the allegations of paragraphs 1-48 above as if fully set forth herein.

50. Defendant Ramot purports to be the owner all rights, title, and interests in the '872 patent, including the right to enforce the '872 patent.

51. Cisco does not infringe and has not infringed—directly, contributorily, or by inducement—any claim of the '872 patent by manufacturing, using, selling, offering for sale, or importing any of the Accused Products at issue in this action.

52. Acacia does not infringe and has not infringed—directly, contributorily, or by inducement—any claim of the '872 patent by manufacturing, using, selling, offering for sale, or importing any of the Accused Products at issue in this action.

53. The Accused Products include products that are analog-driven, *i.e.*, which use a digital signal processor having a digital-to-analog converter at its output. These analog-driven products include Acacia's AC1200 products, AC400 products, and 100G, 200G, and 400G pluggable modules in a variety of standard form factors such as CFP-DCO, CFP2-DCO, CFP2-ACO, OSFP, and QSFP-DD; Acacia's DSP ASICs and Silicon Photonic ICs; and Cisco's networking equipment incorporating these components.

54. The analog-driven Accused Products do not infringe any issued claims of the '872 patent because none of the issued claims of the '872 patent—including all five independent claims, *i.e.* issued claim 1 (application claim 1), issued claim 11 (application claim 12), issued claim 13 (application claim 36), issued claim 15 (application claim 18), and issued claim 23 (application claim 36)—cover systems or methods that use analog-driven modulators.

55. Moreover, the analog-driven Accused Products do not infringe issued claim 1 of the '872 patent, a system claim, and all claims depending therefrom, because, as analog-driven devices, they do not include at least the “converter for: converting, based on a digital-to-digital mapping, the plurality N digital input bits to M digital output data bits associated with M drive voltage values, and providing the M drive voltage values to the modulator for the modulating” as required by the claim, including as required by the “wherein” clause recited in the claim.

56. The analog-driven Accused Products do not infringe issued claim 11 of the '872 patent, a method claim, and all claims depending therefrom, because, as analog-driven devices, they do not carry out at least the following steps required in the claim: (1) “converting, based on a digital-to-digital mapping, the N digital input data bits to M digital output data bits associated with M drive voltage values, wherein $M > N$ and $N > 1$, wherein the digital-to-digital mapping comprises, for each unique plurality of N digital input data bits, a mapping to a corresponding M digital output data bits wherein, for a given plurality of N digital input data bits, the mapping to the corresponding M digital output data bits is determined based on a pattern for actuating drive voltages that alters the linearity of an optical response to the modulator”; (2) “providing the M drive voltage values to the modulator”; and (3) “modulating the one or more input optical signals responsive to the M drive voltage values, wherein said modulating the one or more input optical signals generates the one or more modulated optical signal outputs.”

57. The analog-driven Accused Products do not infringe issued claim 13 of the '872 patent, a method claim, and all claims depending therefrom, because, as analog-driven devices, they do not carry out at least the following step required in the claim: “mapping, based on a digital-to-digital mapping, the digital input to a first digital output associated with M drive voltages, [1] wherein the first digital output is one from a set of digital outputs that each has M bits of digital data, [2] wherein the set of digital outputs comprises 2^M digital outputs, and wherein $M \geq N$,... [3] wherein, for a first subset of successively decreasing digital inputs in the set of 2^N digital inputs specified in the digital-to-digital mapping, deltas between numerical values of digital outputs in the set of digital outputs corresponding to the successively decreasing digital inputs in the first subset decrease, and [4] wherein, for a second subset of successively decreasing digital inputs in the set of 2^N digital inputs specified in the digital-to-digital mapping, deltas between numerical values of digital outputs in the set of digital outputs corresponding to the successively decreasing digital inputs in the second subset increase.”

58. The analog-driven Accused Products do not infringe issued claim 15 of the '872 patent, a system claim, and all claims depending therefrom, because, as analog-driven devices, they do not include at least the “converter for: converting, based on a digital-to-digital mapping, the N digital input bits to M digital output data bits associated with M drive voltage values, and providing the M drive voltage values to the modulator for the generating” as required by the claim, including as required by the “wherein” clause recited in the claim.

59. The analog-driven Accused Products do not infringe issued claim 23 of the '872 patent, a method claim, and all claims depending therefrom, because, as analog-driven devices, they do not carry out at least the following step required in the claim: “mapping, based on a digital-to-digital mapping, the digital input to a first digital output associated with M drive voltages,

[1] wherein the first digital output is one from a set of digital outputs that each has M bits of digital data, [2] wherein the set of digital outputs comprises 2^M digital outputs, and [3] wherein $M \geq N$, ... [4] wherein, for a first subset of successively increasing digital inputs in the set of 2^N digital inputs specified in the digital-to-digital mapping, deltas between numerical values of digital outputs in the set of digital outputs corresponding to the successively increasing digital inputs in the first subset decrease, and [5] wherein, for a second subset of successively increasing digital inputs in the set of 2^N digital inputs specified in the digital-to-digital mapping, deltas between numerical values of digital outputs in the second set of digital outputs corresponding to the successively increasing digital inputs in the second subset increase.”

60. The Accused Products also include products that are digitally-driven. These digitally-driven products include digitally-driven versions of Cisco’s 100G, 200G, and 400G optical modules, including versions of the QSFP-100G-DR-S, QSFP-100G-FR-S, QSFP-100G-LR-S, and QSFP-100G-ERL-S products.

61. The digitally-driven Accused Products do not infringe any issued claims of the ’872 patent because they do not meet the “digital-to-digital mapping” and “converting, based on a digital-to-digital mapping” requirements set forth in the limitations of all five independent claims, *i.e.* issued claim 1 (application claim 1), issued claim 11 (application claim 12), issued claim 13 (application claim 36), issued claim 15 (application claim 18), and issued claim 23 (application claim 36).

62. The digitally-driven Accused Products do not infringe issued claim 1 of the ’872 patent, a system claim, and all claims depending therefrom, because they do not include at least the “converter for: converting, based on a digital-to-digital mapping, the plurality N digital input

bits to M digital output data bits associated with M drive voltage values” and the “digital-to-digital mapping” required by the “wherein” clause recited in the claim.

63. The digitally-driven Accused Products do not infringe issued claim 11 of the ’872 patent, a method claim, and all claims depending therefrom, because they do not carry out at least the step of “converting, based on a digital-to-digital mapping, the N digital input data bits to M digital output data bits associated with M drive voltage values” required in the claim and the “digital-to-digital mapping” required by the “wherein” clause of the “converting” step in the claim.

64. The digitally-driven Accused Products do not infringe issued claim 13 of the ’872 patent, a method claim, and all claims depending therefrom, because they do not carry out at least the step of “mapping, based on a digital-to-digital mapping, the digital input to a first digital output associated with M drive voltages” required in the claim, including the “digital-to-digital mapping” specified in the “wherein, for a first subset of successively decreasing digital inputs” and the “wherein, for a second subset of successively decreasing digital inputs” clauses recited in the claim.

65. The digitally-driven Accused Products do not infringe issued claim 15 of the ’872 patent, a system claim, and all claims depending therefrom, because they do not include at least the “converter for: converting, based on a digital-to-digital mapping, the N digital input bits to M digital output data bits associated with M drive voltage values, required by the claim, including the “digital-to-digital mapping” required by the “wherein” clause recited in the claim.

66. The digitally-driven Accused Products do not infringe issued claim 23 of the ’872 patent, a method claim, and all claims depending therefrom, because they do not carry out at least the step of “mapping, based on a digital-to-digital mapping, the digital input to a first digital output associated with M drive voltages” required by the claim, including the “digital-to-digital mapping”

specified in the “wherein, for a first subset of successively increasing digital inputs” and the “wherein, for a second subset of successively increasing digital inputs” clauses recited in the claim.

67. Cisco and Acacia do not induce infringement within the meaning of 35 U.S.C. § 271(b). None of their blog posts, presentations, whitepapers, videos, customer instructions, and/or design contributions with respect to the analog-driven or digitally-driven Accused Products—including those identified by Ramot in the 2019 Texas Action and the February 2021 Delaware Action, as referenced above—encourage any individual or entity to directly infringe any claim of the ’872 patent. Nor do Cisco or Acacia have the requisite specific intent to induce infringement.

68. Cisco and Acacia do not contributorily infringe within the meaning of 35 U.S.C. § 271(c). Cisco and Acacia do not make, use, sell, offer for sale, or import the analog-driven or digitally-driven Accused Products or components thereof (such as DSP ASICs and Silicon Photonic ICs) knowing that these products constitute a material part of the claimed invention, are especially made or adapted for use in infringing the ’872 patent, and are not staple articles or commodities of commerce capable of substantial noninfringing uses.

69. Cisco and Acacia seek and are entitled to a declaration that they do not infringe, directly or indirectly, any claim of the ’872 patent under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs Cisco and Acacia respectfully request and pray that this Court:

- a. Find and declare that Cisco and Acacia do not infringe and have not infringed, in any manner, directly or indirectly, any claim of the ’872 patent under the patent laws of the United States, 35 U.S.C. § 1 *et seq.*;
- b. Award Cisco and Acacia all of its costs of this action;

- c. To the extent that Cisco and/or Acacia is the prevailing party, find that this is an exceptional case and award Cisco and Acacia its attorneys' fees pursuant to 35 U.S.C. § 285 and all other applicable statutes, rules, and common law; and
- d. Grant Cisco and Acacia such other and further relief as the Court deems just and proper under the circumstances.

JURY DEMAND

Plaintiffs Cisco and Acacia demand a trial by jury on all issues so triable.

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